



SERIES  
**30**

# MILITARY VEHICLE PRINTS



## SERIES THIRTY

THE DEVELOPMENT OF THE "NEW STURMGESCHUETZ" AND "PANZERJAEGER VOMAG"

JAGDPANZER IV AUSFUEHRUNG F. (Sd Kfz 162)

(GE)

PANZER IV/70 (Sd Kfz 162/1)

(GE)

DETAILED PLAN VIEWS PRESENTED IN 1:76 & 1:48 SCALE

**£0.50**

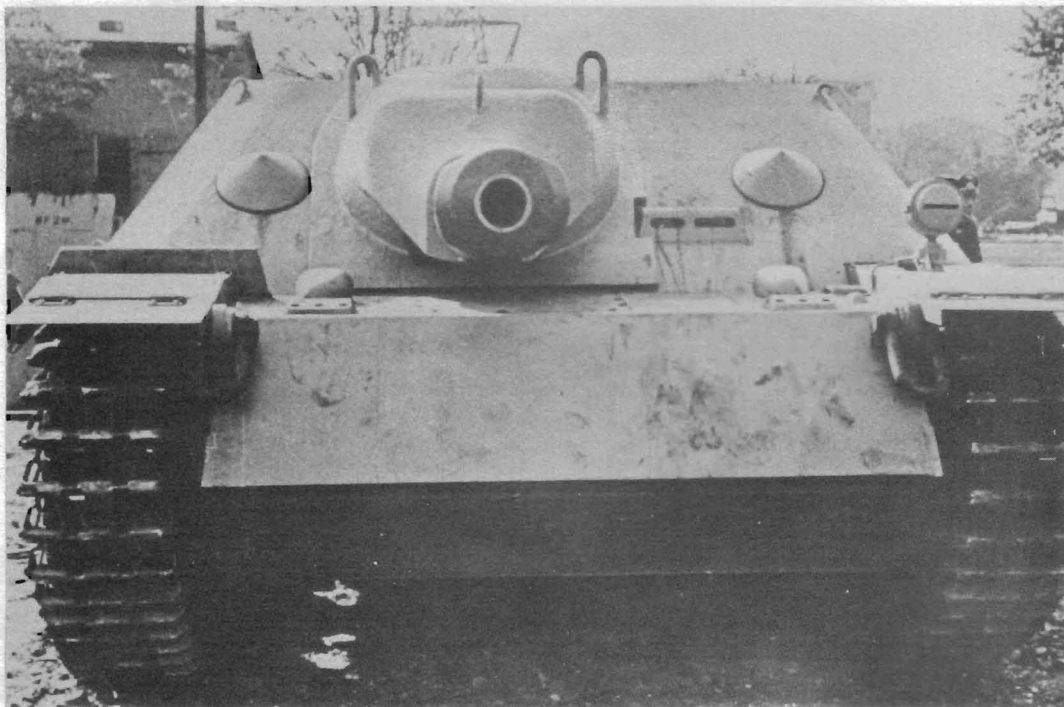


**ABOVE:** The designers of the 'new' Sturmgeschuetz were asked to eliminate many of the shortcomings of the existing Sturmgeschuetz III. Their primary considerations were to take account of the importance of the Sturmgeschuetz in the Anti-tank role and the simplification of manufacture. Their solution was the exceptionally well designed vehicle based on the chassis of a PzKpfw IV. The first wooden mock-up, shown in the photograph was presented to Hitler on the 14th May 1943. Note that an unmodified PzKpfw IV chassis is utilized for the mock-up.

**COVER ILLUSTRATION — Drawn by George Bradford**

The Panzer IV/70 was not available, in any worthwhile numbers, until the very last months of the War. The vehicle illustrated in cover illustration fought, and lost, a last ditch engagement with British 'Cromwell' tanks in the Wesel Bridgehead on the 13th March 1945. It represents a final production version with the steel rimmed wheels on the front bogie. These Panzer IV/70 appear to have been camouflaged at the factory, contrary to usual German practice. The basic colour was the usual sand with green bands sprayed on top. This factory paint job can be seen as many vehicles have very similar patterns. Markings and additional paint was added by the individual units in the field.

**BELOW:** Five months after the wooden mock-up had been seen by Hitler, the soft steel prototype was demonstrated on 20th October 1943, at the training ground at Arys. The actual vehicle, now developed by Vomag AG of Plauen, required a modified, but improved PzKpfw IV chassis. The major change to this PzKpfw IV Ausf. H chassis was the pointed front end. The superstructure remained much the same as shown on the wooden mock-up, but MG mountings were provided beneath the conical covers and the final solution to the main armament mantlet and mounting had yet to be found. (R.A.C. TANK MUSEUM PHOTOGRAPH)





## PANZERJAEGER IV (Sd Kfz 162 & Sd Kfz 162/1) – 1942/45

Drawings by Hilary Louis Doyle. Historical research by Walter J. Spielberger, Armin L. Sohns and Hilary Louis Doyle.

BELLONA PRINTS which should be studied in conjunction with this series:-

Series 29 – Sturmgeschuetz IV (7.5 cm Stu.K 40)(L/48)(Sd Kfz 163). Series 6 – Panzerkampfwagen IV Ausfuehrung J. (Sd Kfz 161/2). Series 4 – Sturmpanzer IV 'Brummbaer' (Sd Kfz 166) and Jagdpanzer 38(t) 'Hetzer'. A later series will cover the Panzer IV/70 Zwischenloesung.

The experience gained during the advance on Stalingrad and in the vicious fighting there, in early September 1942, contributed to the new minimal requirements for the creation of heavy assault guns. Demands were made for protection by at least 100 mm of frontal armour with side armour of about 40 to 50 mm. Wide tracks would be needed to reduce ground pressure and a total weight of 26 metric tons was not to be exceeded. A top speed of 25 Kmph (16 mph) was considered acceptable. The main armament was to be as low as possible above ground level. Proposed main armament pointed towards the new 7.5 cm L/70 cannon that Rheinmetall-Borsig had developed for the PzKpfw 'Panther', for the general anti-tank role, while the 10.5 cm howitzer and 15 cm heavy infantry gun were suggested for the Infantry support role. While the design of such a vehicle continued, the existing Sturmgeschuetz III was to be improved as much as possible so as to fit in with the new specification.

Further investigations were also ordered so as to examine the feasibility of basing the future Sturmgeschuetz requirements on the chassis of the current PzKpfw IV, as it had already been agreed to build the 15 cm Sturmpanzer IV using this chassis. It is interesting to note that in October 1942 the production of the PzKpfw IV had only reached about 100 per month, but high production was forecast for 1943. At a meeting in October 1942, to discuss the matter of the "new Sturmgeschuetz", Hitler welcomed a suggestion that the ground clearance of the existing Sturmgeschuetz III could be increased to 50 cm (1' 8") by using a new form of staggered suspension. At the same time ground pressure was to be decreased from over 1 kp/sq.cm. to only 0.7 Kp/sq.cm. Hitler then demanded that all the other features of the "new Sturmgeschuetz" be incorporated in the Sturmgeschuetz III design at the same time, namely the long 7.5 cm gun and 100 mm of frontal armour with sloped surfaces.

On reflection, it was realised that such modifications to the Sturmgeschuetz III could not materialize before May 1943, by which time a new design could also be ready. Therefore, it was again recommended that the PzKpfw IV chassis be utilized, complete with its existing powerplant and drive train. However, should it become necessary, in spite of these recommendations to anticipate a completely new design, favourable consideration was to be given to an even larger chassis which would be capable of mounting the 8.8 cm gun.

**BELOW:** The original 'O' series of pre-production Jagdpanzer IV Ausf. F still had the rounded front plates. However, ballistic and production problems were taken into account and the first production vehicles were fitted with a flat front plate on the superstructure. The early production vehicle as illustrated here were recognised by having a muzzlebrake on the 7.5 cm L/48 gun and by the stowage layout. Spare track links being carried on the nose plate and the spare wheels on the vertical tail plate. (IMPERIAL WAR MUSEUM PHOTOGRAPH)



Altmaerkische Kettenfabrik, who were charged with the design of the "new Sturmgeschuetz", were also ordered to develop a prototype vehicle based upon the PzKpfw IV chassis, under the designation "Geraet Nr 822", which was to mount the new L/70 cannon. In parallel they were to develop the "Geraet Nr 823" armed with the 10.5 cm H 42/2 Infantry Howitzer, but using the same superstructure as the "Geraet Nr 822". A scale model of this "new Sturmgeschuetz" was presented to Hitler in late October 1942. Impressed with this model he ordered that the final specification for the "new Sturmgeschuetz" was to include use of the PzKpfw IV chassis with no special modifications to the engine or transmission, but it was to have the 50 cm ground clearance and wider tracks already suggested for the Sturmgeschuetz III. The new vehicle was to have the 7.5 cm L/70 cannon and was to feature sloped armour. Since the 7.5 cm L/70 guns were required for the 'Panther' Program Hitler agreed that the first of the "new Sturmgeschuetz" could be ordered equipped with the existing 7.5 cm L/48 cannon.

Additional orders were issued in December 1942, demanding the speedy replacement of the 7.5 cm L/48 by the L/70 guns. While still further proposals were submitted, and discussed, for a "new Sturmgeschuetz" which would be based on a composite chassis. This chassis was to be built from components of the PzKpfw III, scheduled for scrapping in early 1943, the PzKpfw IV and from the new light PzKpfw 'Leopard' which already was due for cancellation. The former orders for the "new Sturmgeschuetz" were held up while this new idea was investigated.

Fortunately, everything possible was being done, during this time, to bring the production of the existing Sturmgeschuetz III up to the highest level. Only 100 vehicles having been built in November 1942. All the PzKpfw III production facilities were diverted to constructing the Sturmgeschuetz III so that an adequate number of vehicles would be available until it was possible to switch over to the "new Sturmgeschuetz" vehicle. It was also decided that the existing design be updated as much as possible so as to comply with the new specification. Priority was especially given to the development of wider tracks and better ground clearance.

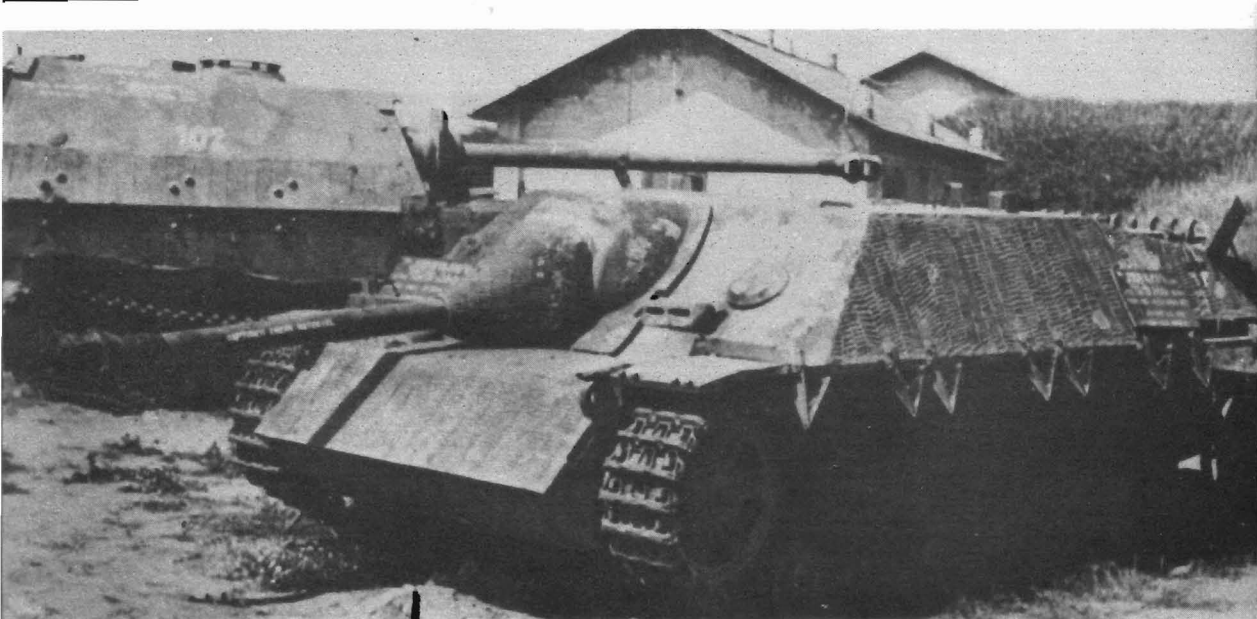
Such was the confusion in the 'Sturmgeschuetz' Program that it was Speer himself who in January 1943 warned Hitler of the problems in this connection. It was impossible for Industry to cater for a multitude of development and improvement plans while at the same time making arrangements for a complete switch in the Sturmgeschuetz production twice in one year without grave interruption of the production schedules. If the production of a "new Sturmgeschuetz" with the 7.5 cm L/70 was to commence at all during 1943 the decision on the final configuration had to be made immediately and must not be changed later. This resulted in acceptance of the design using the tried and tested PzKpfw IV chassis which could be made readily available. Hitler ordered construction of the "new Sturmgeschuetz" on PzKpfw IV in January 1943.

In February 1943 Hitler recalled Guderian from his enforced retirement and gave him the job of Inspector of Panzer Troops. One of his first tasks was to study the complete situation concerning the new equipment that had been ordered during the years of his retirement. What he found caused him great concern as he felt far too many projects were on hand and confusion was everywhere. In particular, the situation regarding the PzKpfw IV worried him. The promise of the new 'Tiger' and 'Panther' tanks had overshadowed the importance of the PzKpfw IV, which was the only Battle tank available to the troops that would be available in sufficient numbers within the coming year. Only a few 'Tiger' companies had been equipped and no 'Panther' units would be available for some months. While Guderian felt that any use of the PzKpfw IV chassis was a threat to production of that tank he was especially against the "new Sturmgeschuetz". He felt that it unnecessarily duplicated the Sturmgeschuetz III, which had proved an adequate vehicle to date. But the whole concept of the mass production of defensive weapons like the Sturmgeschuetz was foreign to him in any event.

On the 9th March 1943, a conference was held with Hitler and all other parties interested in the Panzer Troops, at which Guderian set out his proposals for 1943/44. Guderian made several attacks on the value of the proposed "new Sturmgeschuetz", with its 7.5 cm L/70 cannon, based on the PzKpfw IV chassis. Instead of this vehicle he demanded increased production of the PzKpfw IV tanks and proposed that the new Sturmgeschuetz L/70 be abandoned in favour of increased production of the existing Sturmgeschuetz III armed with the 7.5 cm L/48 gun and by a vast increase in production of the armoured troop carriers (Sd Kfz 250 and 251). Guderian's logical arguments were unheeded and he was unable to stop the development of the "new Sturmgeschuetz". However, Vogtlaendische Maschinenfabrik AG (Vomag) in Plauen were entrusted with the further development and construction, so production of the PzKpfw IV was not substantially affected.

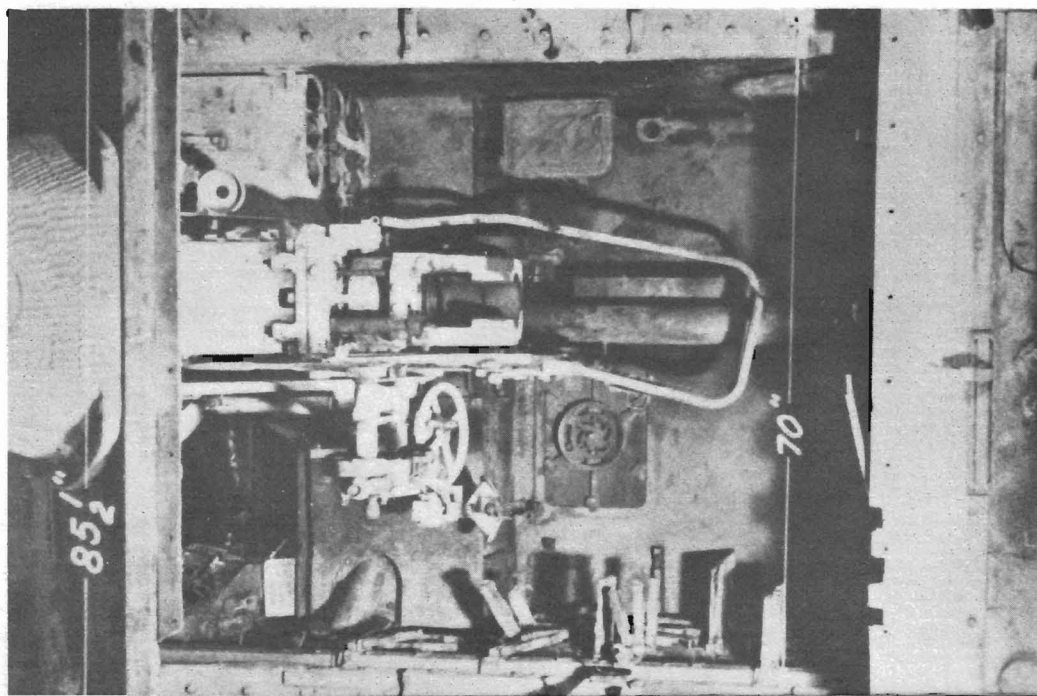
Until this time all official documents referred only to the "new Sturmgeschuetz/Sturmgeschuetz L/70" or to the "Light Sturmgeschuetz/Sturmgeschuetz III L/48". No differentiation was made between them and Panzerjaegers (tank destroyers) as both were fulfilling the same task.

On May 14th, 1943 Vomag AG presented a wooden mock-up of the "new Sturmgeschuetz" to Hitler. This well designed mock-up showed the 7.5 cm L/48 gun and had an overall height of only 170 cm (5' 7") which was felt to be very much the limit for tactical employment. The mock-up was based upon the unmodified chassis of the PzKpfw IV Ausf. F. (7/BW). The design now became known as the "Panzerjaeger Vomag" and was referred to as such until an official designation was allotted in December 1943.



**ABOVE:** This Jagdpanzer IV Ausf. F was captured by American Forces along with the Jagdpanzer 'Elefant' (Panzergeger 'Ferdinand') in the background and shipped to the Armour Proving Ground in Aberdeen, Maryland. The 'Elefant' is still on display at the Museum but it appears that the Jagdpanzer, after being taken apart for examination, was scrapped. Despite having the muzzlebrake this Jagdpanzer already has the modified stowage layout with track links stored on the vertical rear plate and wheels on the engine covers. An interesting point is that the Gunner's MG port, over the driver's vision slit has been sealed and covered with an armoured plate. Note the entry point of an AP round alongside the vision slit. (R.A.C. TANK MUSEUM PHOTOGRAPH)

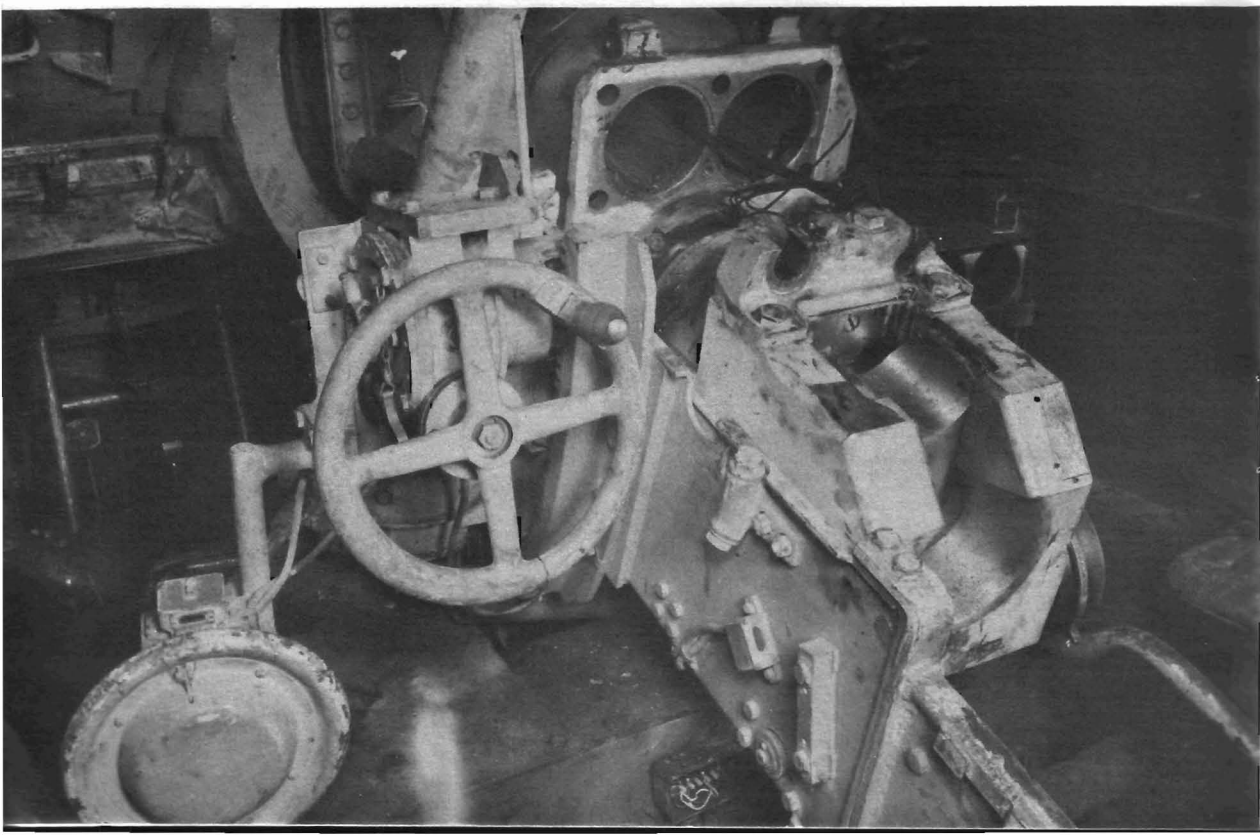
**BELOW:** This is the above vehicle with roof of the fighting compartment removed. Starting at the lower left we have the driver's seat ahead of the central fuel tank, alongside is the 7.5 cm PAK 39 L/48. Working clockwise from this is the bin for 11 rounds of ammunition. In the side panniers above the tracks a further 20 rounds were carried and the rack bases can be clearly seen. The Loader's seat and heater pipe are seen in the hull well. Behind the loader on the rear wall was the radio set racks while the driveshaft tunnel can be seen under the gun recoil guard, which has been bent in action. The commander stood on the rear left with 28 rounds in racks alongside him on the floor. The left hand pannier also held 20 rounds, making a grand total of 79 rounds per vehicle. The gunner sat on a swivelling seat that swung out over the emergency escape hatch in the floor. (U.S. OFFICIAL PHOTOGRAPH)





**ABOVE:** Overhead view of a Jagdpanzer IV Ausf. F examined by the British. As a result of battle experience the muzzlebrake is no longer fitted, although the gun barrel is threaded to receive it. The two MG mountings are seen with the covers opened. (IMPERIAL WAR MUSEUM PHOTOGRAPH)

**BELOW:** The interior of the above vehicle as seen from the gunner's position. Ahead to the left of the gun is the driver's seat and vision slits. It is important to note that both the recuperator and buffer are missing from the gun assembly. The spoked handwheel elevates the PAK 39, while the other solid handwheel traverses this gun. (R.A.C. TANK MUSEUM PHOTOGRAPH)





The wooden mock-up did not feature any armament other than the 7.5 cm L/48 cannon. Already Sturmgeschuetz III crews were finding this a problem. However, in July disaster struck the heavy Panzerjaeger 'Ferdinand' during the Operation 'Zitadel' (Kursk Offensive). Armed with only the long 8.8 cm L/71 gun these Panzerjaegers penetrated the Russian lines only to find their supporting infantry bogged down behind them. Unprotected by the infantry they fell prey to Russian tank hunter teams and despite heroic defence by the crew with their side arms many of these 'super' weapons were destroyed. Over reaction caused the introduction of two machine gun ports in the front plate of the "Panzerjaeger Vomag", the addition of the close-in-defence weapon in the roof and the suggestion that the curved barrel machine pistol be developed for use in such armoured vehicles as quickly as possible.

All these features were included in the soft steel prototype vehicle which was shown to Hitler at the Arys training ground on the 20th October, 1943. At this same display Hitler also saw the wooden mock-up of the 'Tiger II' along with prototypes of the Sturmtiger and Jagdpanther. Shortly afterwards Hitler ordered preparation for mass production of "Panzerjaeger Vomag". Construction of the "O" series of pre-production vehicles now commenced at the factory in Plauen.

Meanwhile, the War situation was becoming more critical in this latter part of 1943. Due to the delay in introducing the "Panzerjaeger Vomag" and because of lagging Sturmgeschuetz III chassis production it became necessary to introduce a compromise Sturmgeschuetz using the chassis of the PzKpfw IV and the usual superstructure of the Sturmgeschuetz III. The quick introduction of this vehicle is explained in the last issue of Bellona Prints — Series 29. When the Sturmgeschuetz IV, as the compromise vehicle was designated, was ordered at the beginning of December, Hitler also demanded that he see the production version of the "Panzerjaeger Vomag" at the same time. The Demonstration was held on the 16th December, 1943 and following that, both vehicles were released for immediate mass production. The Official designation "Jagdpanzer IV Ausf. F (Sd Kfz 162)" was allocated to the "Panzerjaeger Vomag". Both the Jagdpanzer IV Ausf. F and the Sturmgeschuetz IV were included in the total of 500 Sturmgeschuetz that were to be manufactured in January 1944.

The first vehicles of the pre-production "O" series of the Jagdpanzer IV Ausf. F were released to training units and apparently were never used in combat. The "O" series is the subject of the first drawing in this Bellona Print. This was the only model manufactured with the rounded front superstructure plate. The normal production vehicle was fitted with a flat armour plate on the front of the superstructure, as this required no complex bending process. It was also felt that flat plates were ballistically superior to rounded ones as there had been a lot of complaints about the rounded gun mantlet on the new PzKpfw 'Panther'. Finally, a decision had been made to increase the frontal armour of these vehicles from the 60 mm to 80 mm at the earliest possible time and flat plates were therefore desirable. The first combat units received their Jagdpanzer IV Ausf. F in early 1944.

The Vomag Jagdpanzer IV Ausf. F used a specially modified chassis based on the current production PzKpfw IV Ausf. H (9/BW) chassis. The modifications to the PzKpfw IV chassis were as follows: the nose was pointed, being formed from two well sloped armour plates, interlocking stepped joints were used to strengthen the welded construction, as the superstructure extended further forward the air intakes and air circulation system for the steering brakes had been redesigned, the heating system for the fighting compartment was improved and a rectangular hatch was provided for the emergency exit in the hull floor and this escape hatch was fitted with a new type of quick-release locking mechanism, additional fuel tanks were located behind the driver in the fighting compartment and because of this the fuel filler openings were relocated on the hull side, the engine featured a dogged crank shaft, for an auxiliary starter, as had just been introduced for the PzKpfw IV, coolant exchange systems were also included (see Bellona Prints Series 20 — Panzerkampfwagen III for details of this equipment), as there was no turret requiring power traverse the small DKW supplementary engine and emergency generator were deleted, finally small deflector plates were welded to the rear hull side positioned so as to drive loose track pins back into place each time they passed.

The compact, well designed, superstructure was intended to give the protection demanded in the original 1942 specification. The front plate was 60 mm thick, but it was sloped at 40 degrees and therefore, was equivalent to 95 mm of vertical armour. Likewise the side armour, only 30 mm thick was sloped at 60 degrees and thus equalled about 35 mm of vertical plate. The rear plates were also of 30 mm armour. The roof was a 20 mm plate attached to the sides by countersunk screws. Conical covers between 20 mm and 75 mm thick protected the two machine gun mountings on either side of the main armament. 5 mm "Schurzen" apron plates were bolted onto the sides of all vehicles in order to protect the vertical hull sides. The armour plate was supplied by Witkowitz Bergbau — und Eisenhuetten Gewerkschaft, Rheinmetall-Borsig of Unterlues and Seitzwerke of Kreuznach manufactured the main armament.

The main armament of the Jagdpanzer IV Ausf. F was the 7.5 cm PAK 39 (L/48) which was a version of the standard 7.5 cm Stu. K40 (L/48) with a specially modified mounting for fitting in both this vehicle and the Jagdpanzer 38(t) 'Hetzer'. This weapon was developed by Rheinmetall-Borsig. The armoured mounting and mantlet were of a completely new design which had excellent splash protection when compared to the open

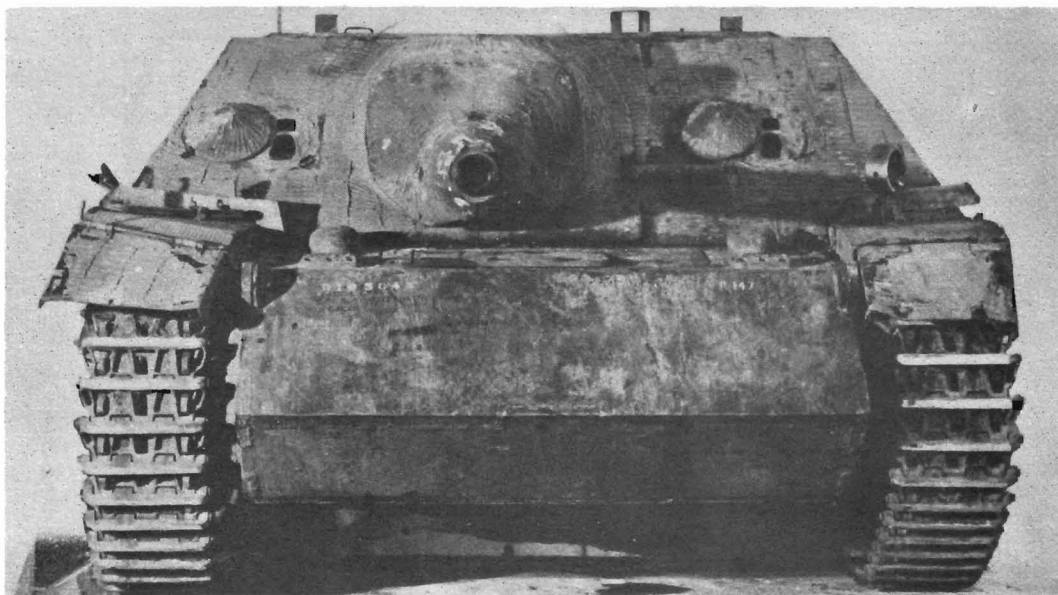
mounting of the Sturmgeschuetz III. There were three main sections starting with the primary mantlet, or so called "Saukopf" (Boarshead). This saukopf was slid over the recoil tube or sleeve in which the gun barrel recoiled. The saukopf was held in place by four screws in holes radially placed around its circumference. The recoil tube was welded to the secondary splash shield mantlet. This splash mantlet was inside the main armoured mounting which was attached to the front armoured plate. Inside the main armoured mounting there was a yoke which was pivotted at the top and bottom. The complete gun swung vertically in this yoke while the yoke itself was turned to achieve the traverse. The traverse was effected by turning a hand crank. The gunner's main sights were similar to the Sfl. Z.F.1a used in the Sturmgeschuetz III and projected through the roof in the same way. An improved type of armoured cover was introduced which was based upon that developed for the 'Ferdinand'. The sight range drum was graduated in 100 metre units. The complete gun mounting was offset 20 cm (8") to the right of the centreline, thus was directly over the gearbox and drive shaft. The fire height of the gun was only 140 cm (4' 7") above the ground. The secondary armament was provided for by way of the two 13 cm (5") machine gun ball mounts in the front armour plate. All vehicles were supposed to have the Nahverteidigungs-waffe (Close-in-defence weapon) fitted in the roof. However, this weapon was not always available for installation. The Nahverteidigungswaffe was a 360 degree traverse 90 mm bomb thrower which could be used not only to defend the vehicle against hostile infantry but also to spread smoke candles.

The radio equipment consisted of the standard Armoured vehicle sets FU 5 which consisted of the 10 W.S.c (10 Watt sender c) and the Ukw.E.e (Ultra short wave receiver e) which operated on the 27200 to 33300 Kc/s frequency band. The aerial was the usual 2 metre rod and range of transmission for vehicles on the move was between 2 and 4 Km (2.5 and 1.25 miles). The FU 5 sets were located in racks on the engine firewall behind the loader, who also acted as the radio operator. Command vehicles belonging to Platoon, Company and Battalion leaders were equipped with additional radio sets to suit their function. These vehicles carried an extra crewman — the radio operator. Command vehicles had a second 2 metre rod aerial on the left hand side of the rear superstructure but are otherwise indistinguishable from the regular Jagdpanzer IV. The normal crew consisted of four men, the commander, gunner, driver and loader/radio operator. Combat weight of the vehicle was 24 tonnes which gave a ground pressure of 0.86 Kg/sq.cm which was near the original requirement without any modifications having been made to the track or suspension of the regular PzKpfw IV.

As a result of a demonstration of new ordnance equipment, which included the Jagdpanzer IV Ausf. F, on the 26th January, 1944, the decision to re-arm the "Panzerjaeger Vomag" with the 7.5 cm L/70 cannon was reiterated. Hitler insisted that this be done at the earliest possible time. Meanwhile production targets were increased. Early experiences in action proved the Jagdpanzer IV Ausf. F to be an excellent fighting vehicle with good reliability. While it had much the same performance as the Sturmgeschuetz III it was very much better protected not only by its improved armour thickness and layout but also by virtue of its low silhouette. The improved secondary armour gave the crew the opportunity to defend themselves successfully against Infantry without using their main armament ammunition stocks. The increased cargo of ammunition and fuel allowed continued combat while the lower ground pressure gave slightly better mobility. However, all these improvements were only marginally better than the Sturmgeschuetz III which had been steadily up-dated also. This was just as forecast by Guderian nearly a year earlier when he claimed that the effort involved was not warranted. However, there were great hopes held for the introduction of the same vehicle with the 7.5 cm L/70.

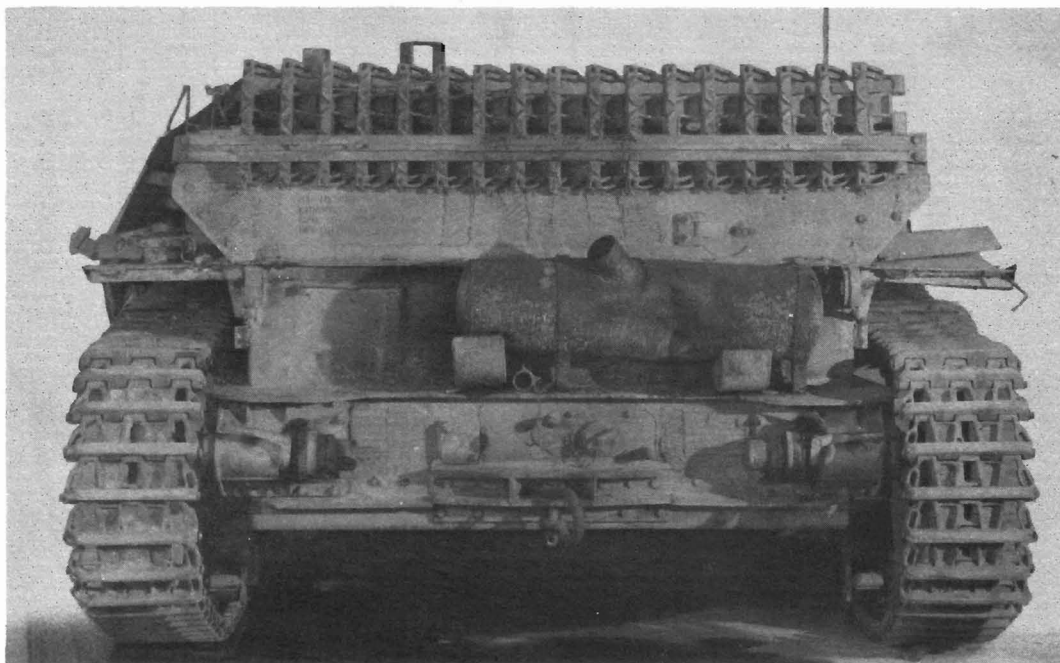
Inevitably use of the Jagdpanzer IV Ausf. F in combat led to modifications and additions to the specification. The first changes seen were in the arrangement of the stowage layout. The spare track links were removed from the nose plate and carried on the rear vertical plate. The wheels formerly stored there were moved to a position over the engine cover air louvres. The next significant step was the elimination of the muzzle brake. Due to the lower, more forward, position of the gun, backblast tended to stir up dust which hampered the observation of fire and corrections. The additional recoil forces could be absorbed by the PAK 39 mounting and Vomag superstructure and there was adequate space for a longer recoil. Many vehicles had guns that were treaded to take the muzzle-brake, but in time all gun barrels were delivered without this treading. The next modification was the increase of the frontal armour thickness from 60 mm to 80 mm. With the slope of the front plates this meant an equivalent of 124 mm of vertical armour. At this time also the hull and superstructure sides were changed from 30 mm to 40 mm which was equivalent to 50 mm vertical armour with the slope of the superstructure sides. At the same time the machine gun ball mount provided for the gunner on the left hand side was eliminated. It is not known whether this gun position was deleted because of the thicker armour or because of combat experiences. In conjunction with the increase to 80 mm the flanges of the main gun mounting were re-shaped so as to undercut the gun. On the earlier vehicles the flange was wider with perpendicular sides and gave increased armour protection to the area beneath the gun. This latter change presumably was an effort to reduce frontal weight which was already high. A Jagdpanzer IV Ausf. F of this type was examined by the British Department of Tank Development in late 1944 who noted that the chassis number was 320314.

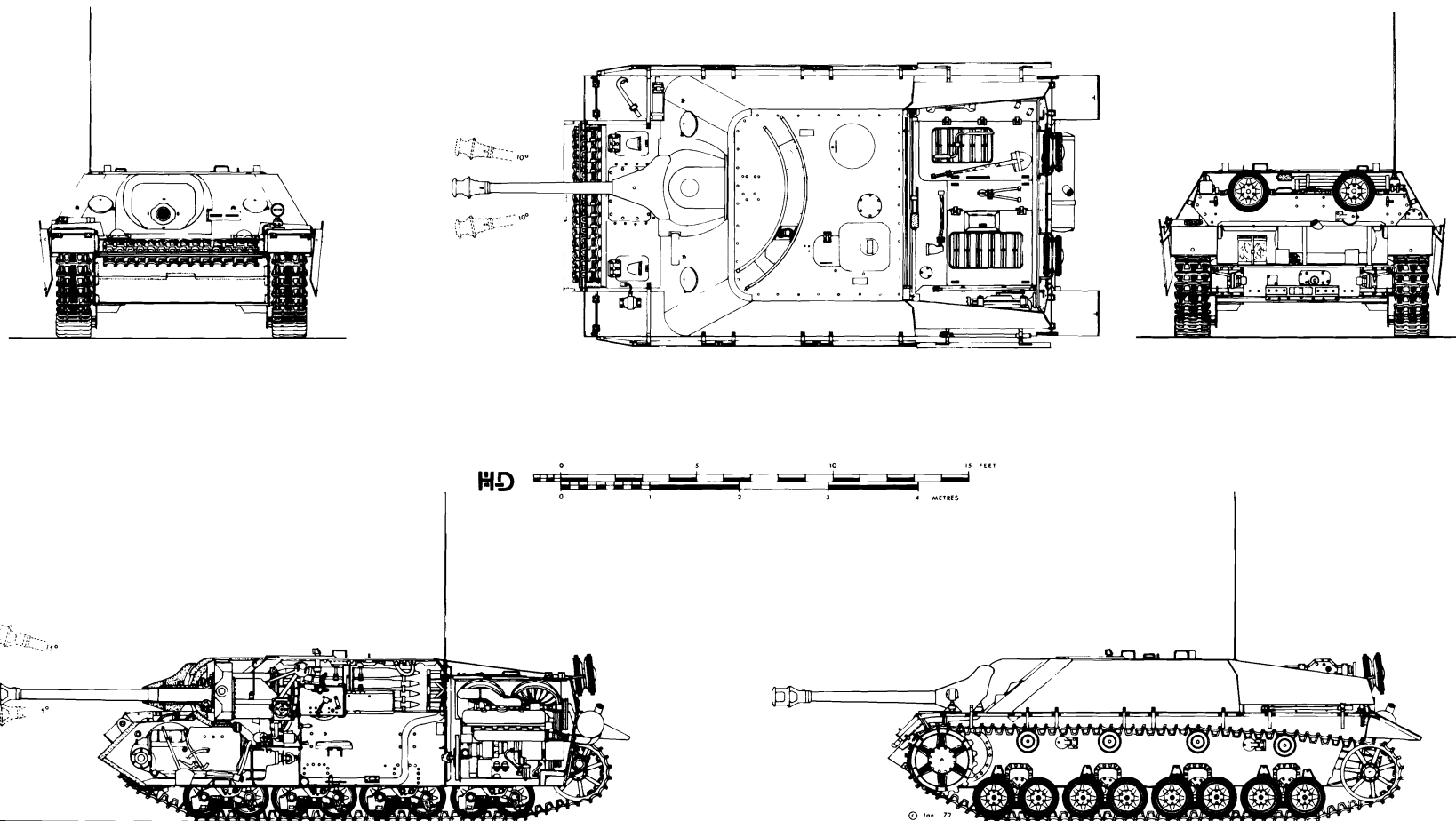




**ABOVE:** Front view of the vehicle on page six. Note that on these Jagdpanzer IV Ausf. F the gun mounting flange rises perpendicularly from the glasis plate as on all vehicles with the 60 mm frontal armour. (R.A.C. TANK MUSEUM PHOTOGRAPH)

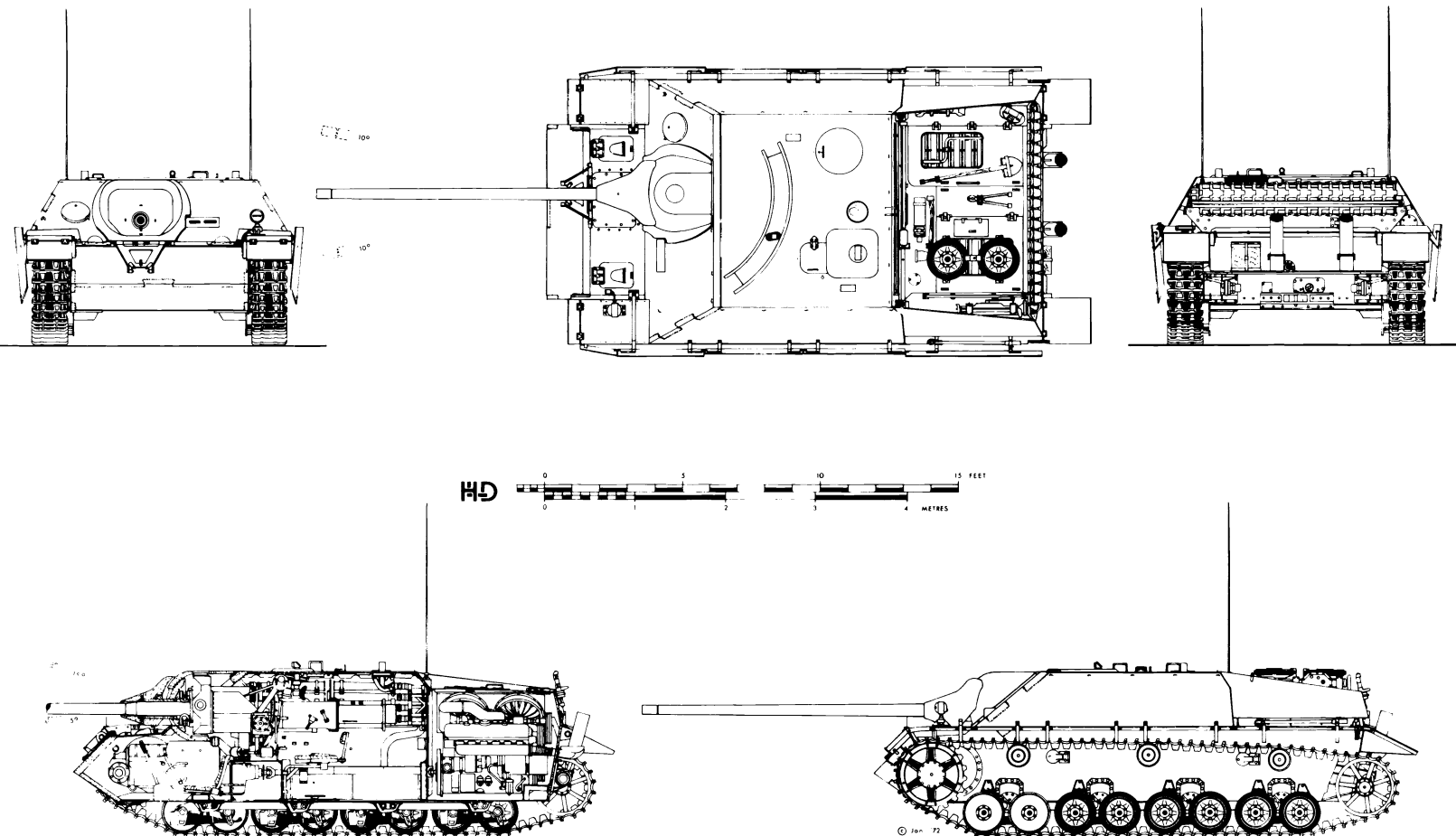
**BELOW:** Rear view of the above vehicle. As can be seen the regular PzKpfw IV rear hull is unchanged. However, like all PzKpfw IV Ausf. H the lower plate joins the belly plate at right angles. Earlier models had an angled plate joining them. Alongside the upper run of track small plates can be seen attached to hull side. Copied from Russian tanks these plates forced loose track pins back into place each time they passed. (R.A.C. TANK MUSEUM PHOTOGRAPH)





Jagdpanzer IV Ausf. F (Sd Kfz 162) (O-Serie)

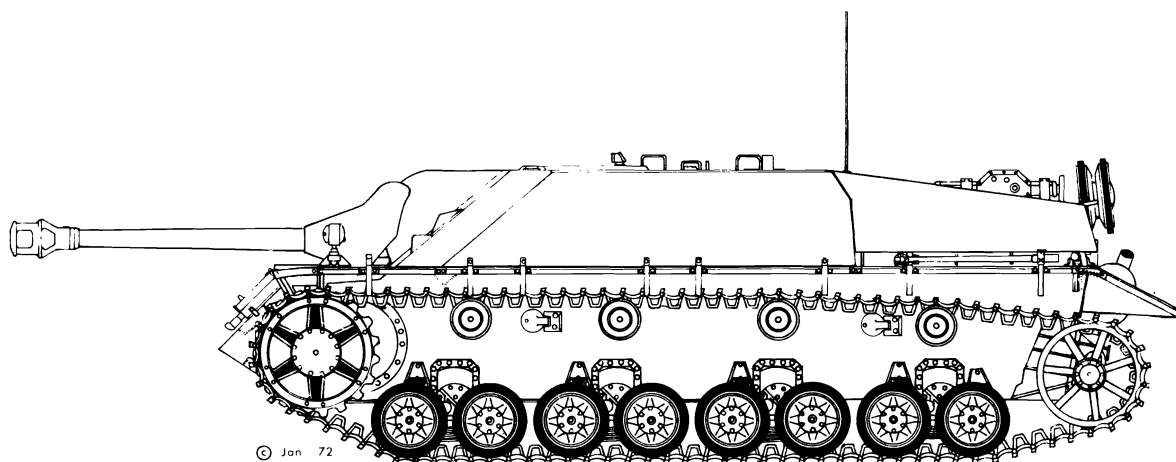
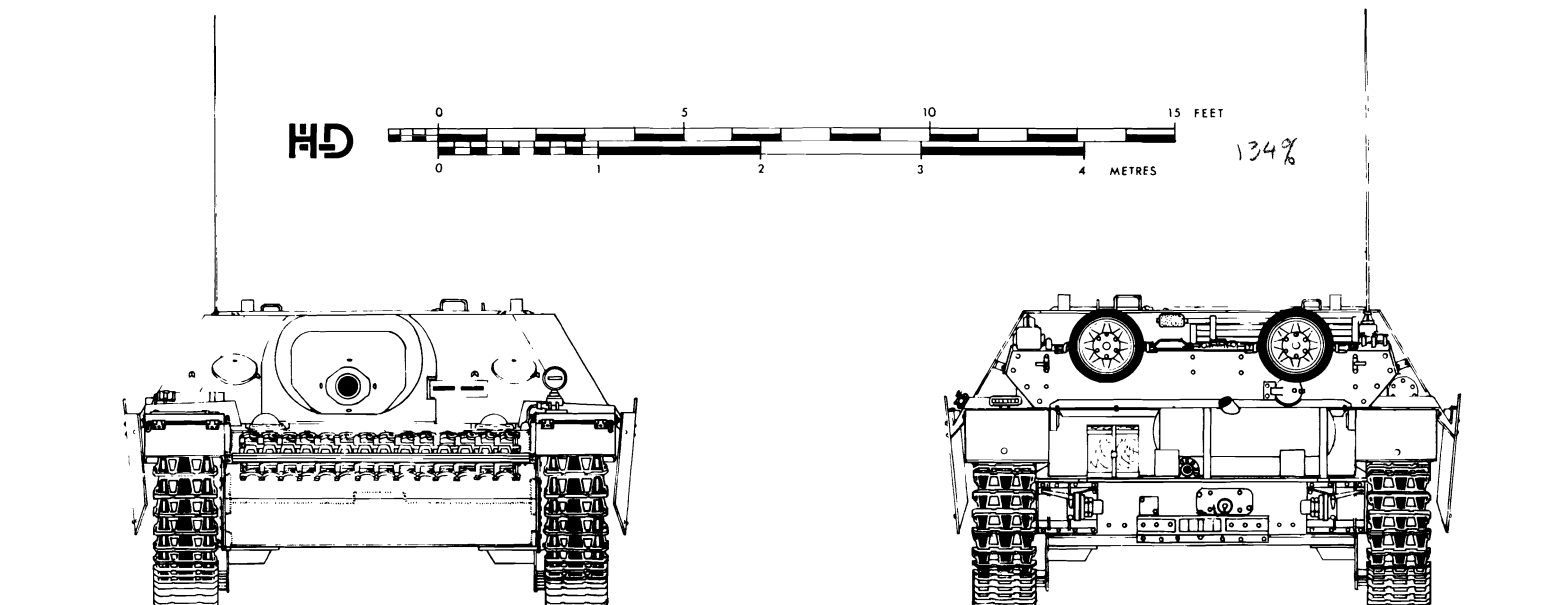
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PANZER IV/70. (Sd Kfz 162/1)

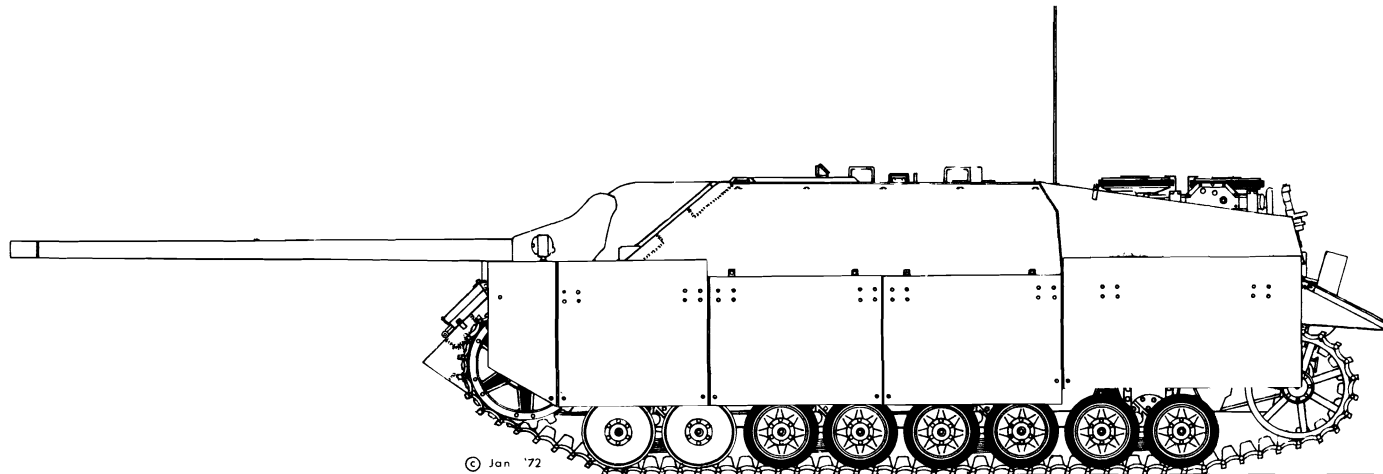
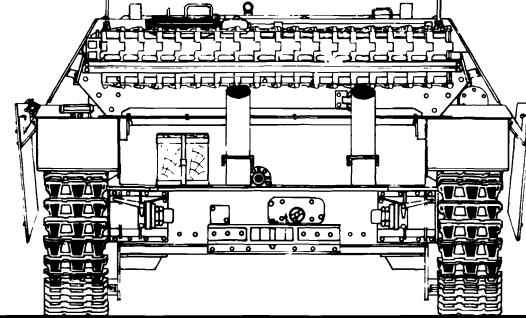
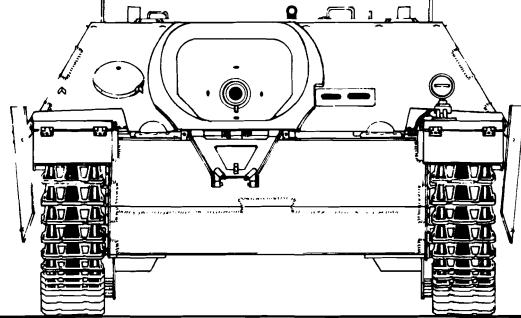
DRAWN BY HILARY LOUIS DOYLE





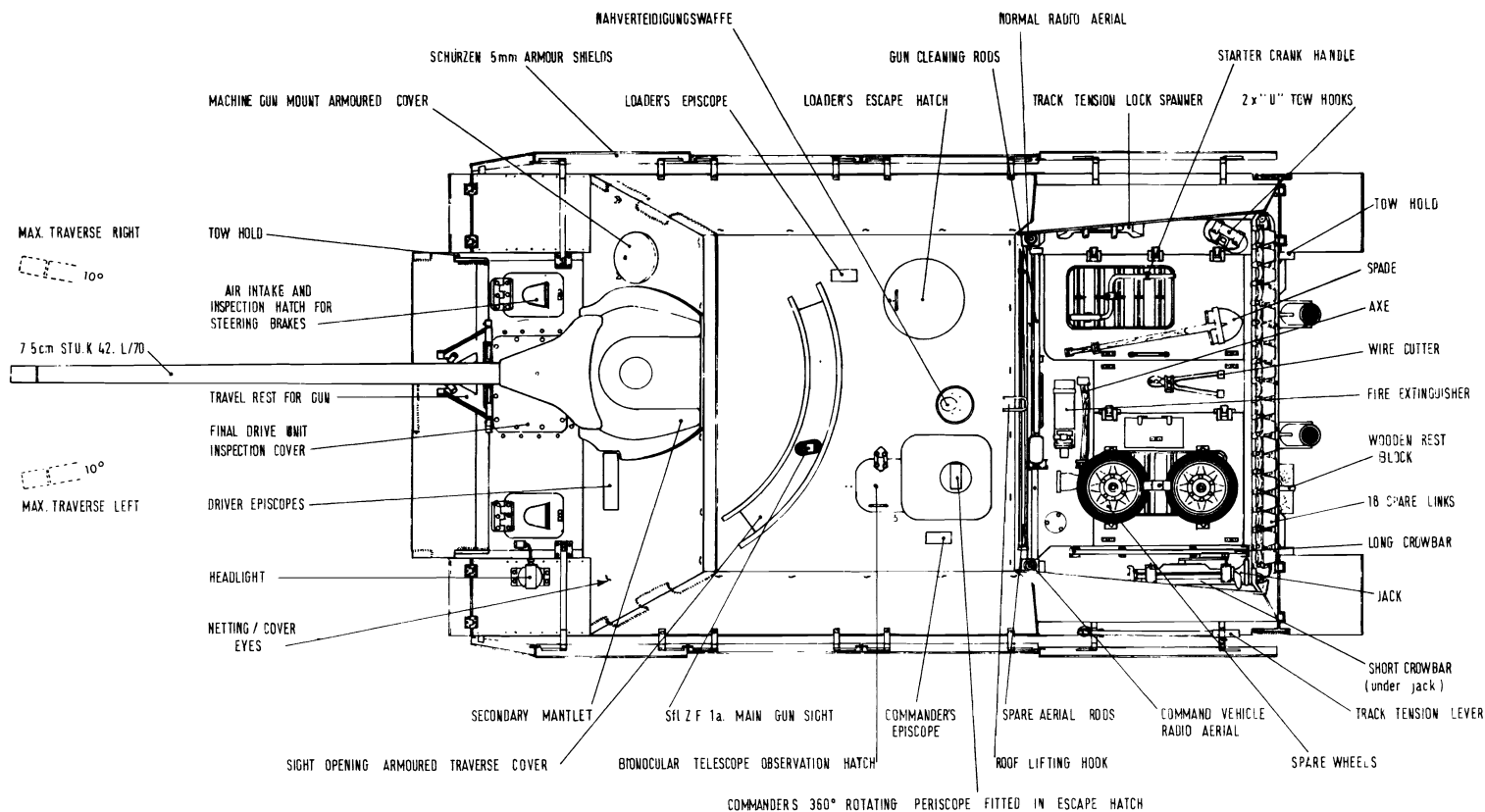
Jagdpanzer IV Ausf. F (Sd Kfz 162) (0-Serie)

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PANZER IV/70. (Sd Kfz 162/1)

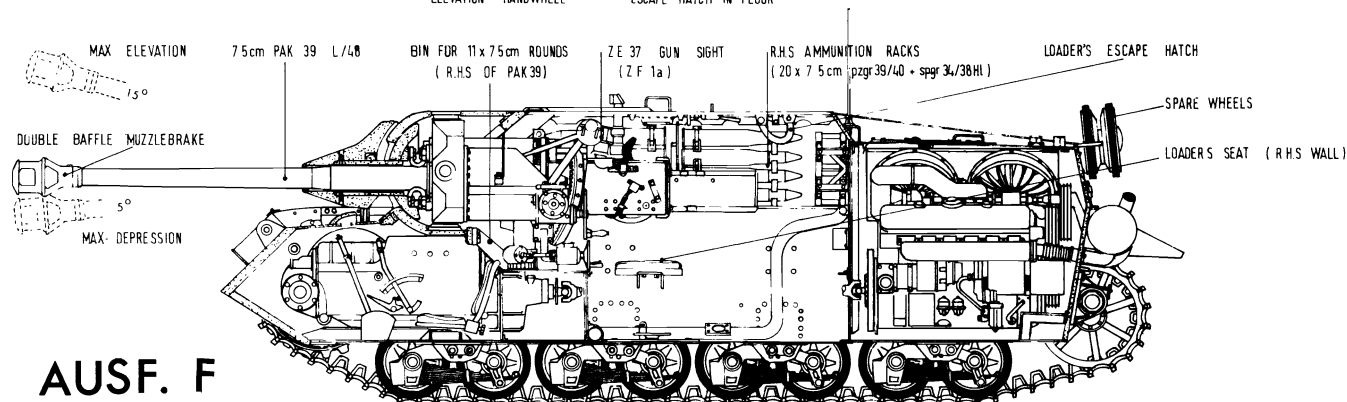
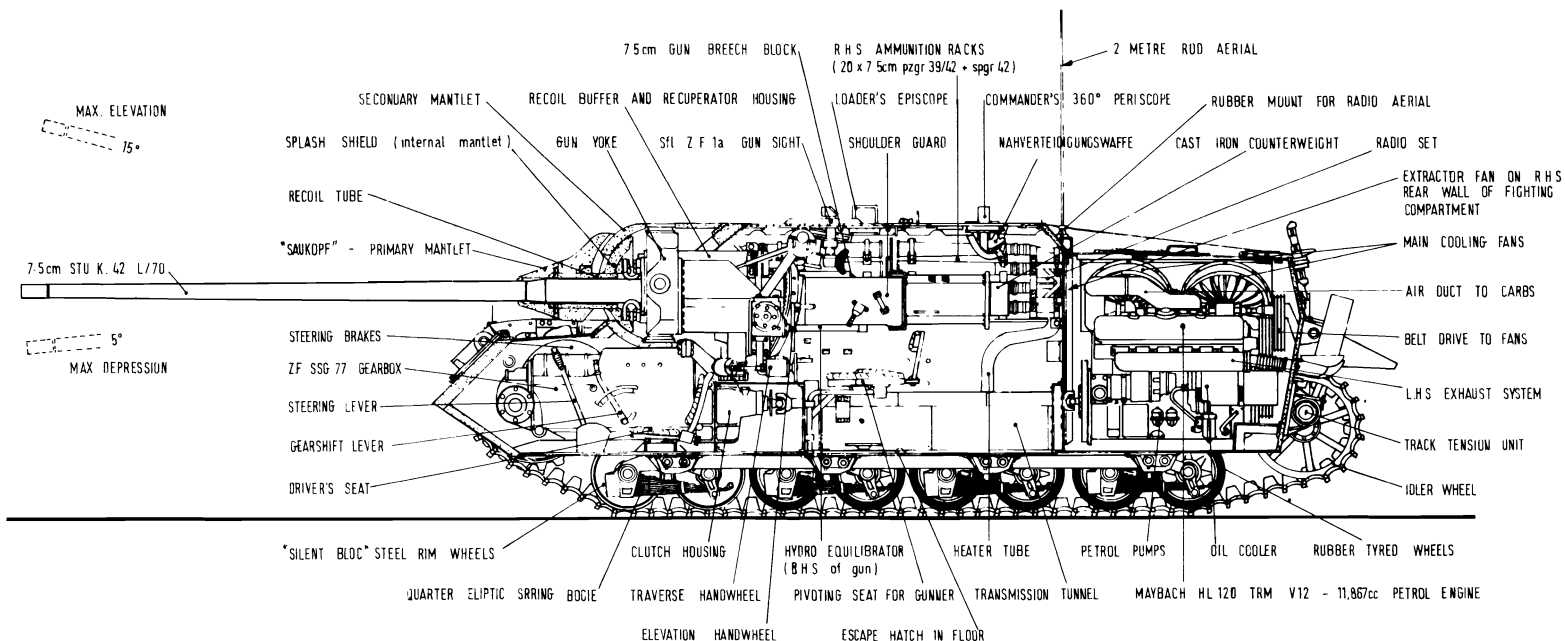


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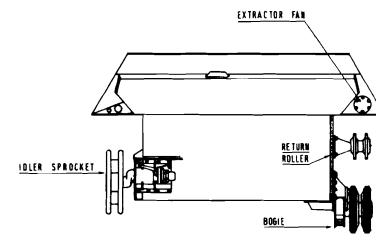
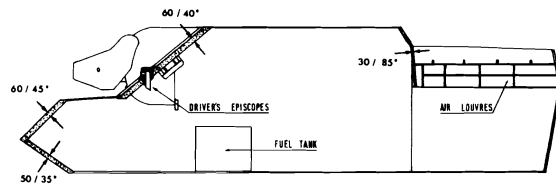
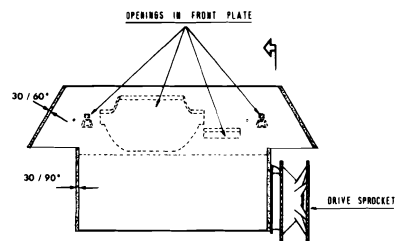
DRAWN BY HILARY LOUIS DOYLE

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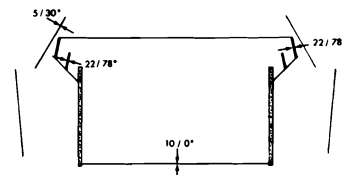
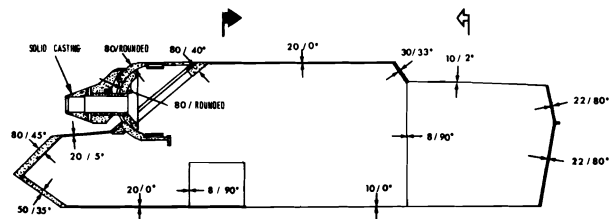
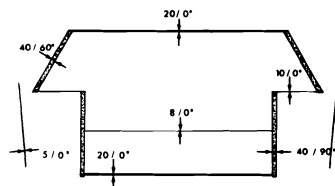




**AUSF. F**



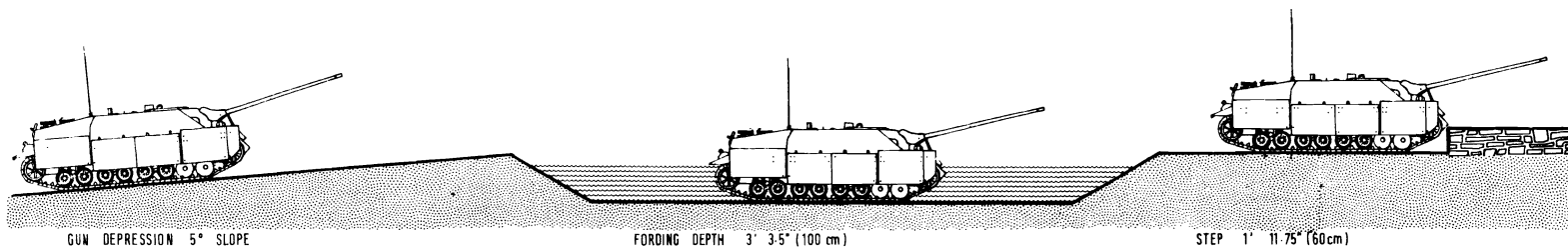
### Armour variation on early Jagdpanzer IV (Sd Kfz 162)



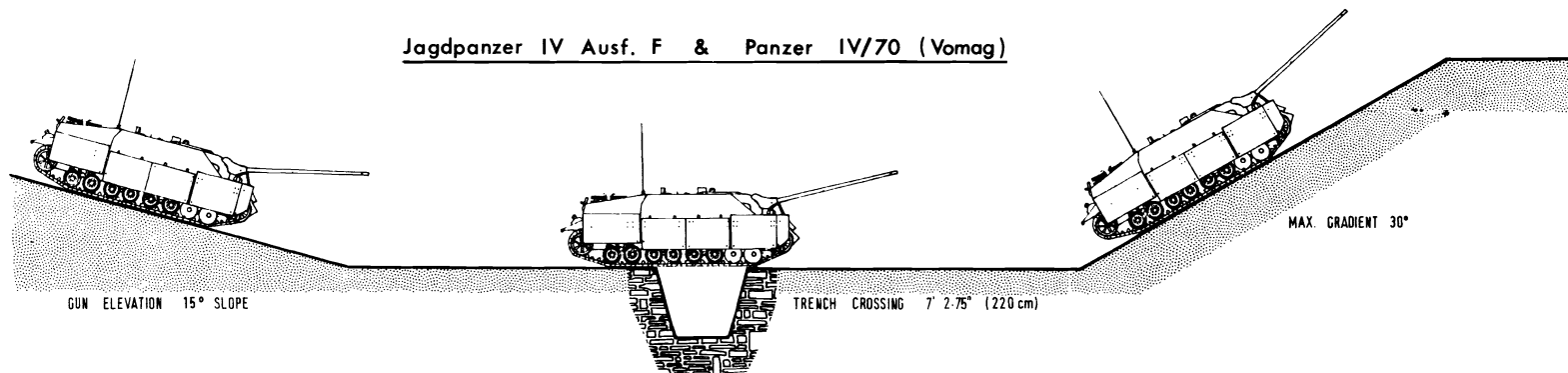
### Armour Protection on PANZER IV/70 (Sd Kfz 162/1)

PERFORMANCE CHART

SCALE 1:192



Jagdpanzer IV Ausf. F & Panzer IV/70 (Vomag)





# **TECHNICAL SPECIFICATION FOR JAGDPANZER IV AUSFUEHRUNG F.**

Crew	4 or 5
Combat weight	24.00 tonnes, 23.60 tons 52,864 lbs, 26.43 short tons
Armament	1 x 7.5 cm Pak 39 (L/48) (2.9527 inch)
Secondary armament	2 x 7.92 mm MG 42 or 34
Ammunition stowage	79 rounds of 7.5 cm

## **Performance**

Maximum road speed	24.80 mph (40.00 Kmph)
Typical cross country speed	10.00 mph (16.00 Kmph)
Turning circle	27' 9" (910 cm)
Ground pressure	12.5 psi (0.86 Kgcmsq.)
Range on road	133 miles (214 Km)
Range cross country	80 miles (130 Km)
Power to weight ratio	11.60 metric HP/ton

## **Dimensions**

Length including gun	23' 11" (729 cm) (early version with muzzlebrake)
Length including gun	22' 10½" (698 cm) (late version without muzzlebrake)
Length of vehicle	19' 9" (602 cm)
Width including schurzen	10' 6½" (321 cm)
Width of vehicle	9' 7" (293 cm)
Height overall	6' 5" (196 cm)
Height of vehicle	6' 1" (185 cm)
Ground clearance	1' 3¾" (40 cm)
Fire height of gun	4' 7" (140 cm)
Road wheels, dia x width	18½" x 3½" (47 cm x 9 cm)
Return rollers, dia x width	10" x 2½" (25 cm x 6.5 cm)

## **Trackwork**

Centres	8' 0½" (245 cm)
Length on ground	11' 6¾" (352 cm)
Width	1' 3¾" (40 cm)
Pitch	4¾" (12 cm)
Number and type	99 per track, Typ Kgs 61/400/120

## **Mechanical Details**

Engine type	Maybach HL 120 TRM, V-12, 11,867 cc — bore 105 mm x stroke 115 mm, compression 6.5 : 1, water- cooled, petrol developing 265 bhp at 2600 rpm normal and 300 bhp at 3000 rpm maximum
Fuel system	2 x Solex 4JFF II carbs with 2 mechanical and 1 electrical pump
Starter	Bosch BNG 4/24 ARS 129.
Generator	Bosch GTLN 600/12 — 1500

Batteries	4 x 12 volt/105 Ah
Gearbox	Z.F. Aphon SSG 77. 6 forward and 1 reverse speed
Steering	Clutch and brake
Suspension	4 x articulated pairs of double wheels each side. Sprung on quarter elliptic leaf springs.
Fuel capacity	103.5 Imperial gals, 124.5 US gals, 470 litres in three tanks
Fuel consumption	220 litres per 100 Km of road, 360 litres per 100 Km of country

# **TECHNICAL SPECIFICATION VARIATION FOR THE PANZER IV/70 (Sd Kfz 162/1)**

Combat weight	25.80 tonnes, 25.40 tons, 56,896 lbs, 28.45 short tons
Armament	1 x 7.5 cm Stu. K42 (L/70) (2.9527 inch)
Ammunition stowage	34 rounds of Pzgr 39/42 (AP), 21 rounds of Spgr 42 (HE)

## **Performance**

Maximum road speed	22.00 mph (35.00 Kmph)
Turning circle	36' 0" (1100 cm)
Ground pressure	12.8 psi (0.90 Kgcmsq)
Power to weight ratio	11.00 metric HP/ton

## **Dimensions**

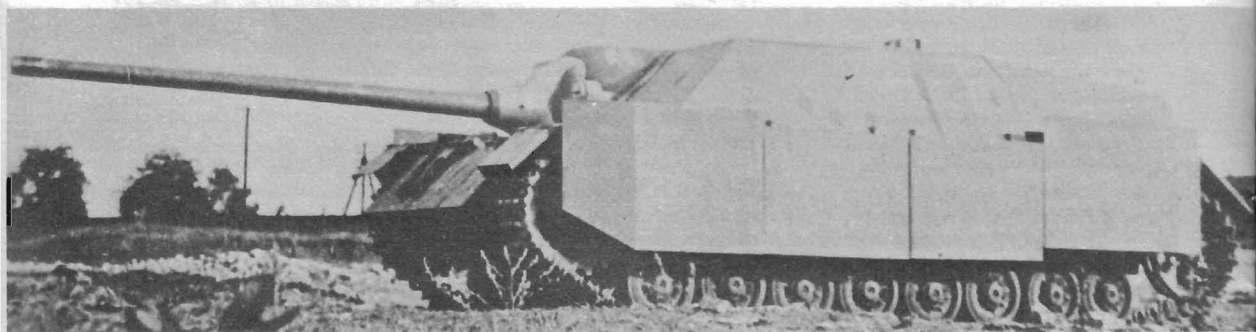
Length including gun	28' 1¼" (858 cm)
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While the production and development of the Jagdpanzer IV Ausf. F continued as described, efforts were made to comply with the order that the 7.5 cm L/70 version be completed as soon as possible. Rheinmetall-Borsig finished their test on the 7.5 cm Stu. K42 which was the designation given to the Panzerjaeger gun they had developed from the 7.5 cm KwK 42 L/70 of the PzKpfw 'Panther'. The new gun was mounted in the Panzerjaeger Vomag and the first photographs of this conversion were shown to Hitler in early April 1944. He was very enthusiastic and considered that this development was one of the most outstanding of the time. As a demonstration of all the current Panzerjaegers had been arranged for the 20th April 1944, his birthday, he insisted that the new Panzerjaeger Vomag L/70 be included. Duly, on the 20th April, the latest versions of the Sturmgeschuetz III, Sturmgeschuetz IV, Jagdpanzer IV Ausf. F and Jagdpanzer 38(t) 'Hetzer' were presented along with the new L/70 vehicle. Delighted with this demonstration Hitler ordered that all available production priorities be devoted to the Jagdpanzer 38(t) 'Hetzer', armed with the 7.5 cm Pak 39 (L/48) and to the Panzerjaeger Vomag armed with the 7.5 cm Stu. K42 (L/70). The Sturmgeschuetz IV and Jagdpanzer IV were to be abandoned as soon as possible in favour of the new designs. New monthly production goals for 1945 were set which included 1,000 'hetzer' and 800 Panzerjaeger Vomag L/70 per month. The Panzerjaeger Vomag L/70 was given the ordnance number Sd Kfz 162/1.

In May 1944, Vomag introduced the L/70 vehicle to their production line. However, only a small proportion of the finished vehicles were fitted with the long gun. Like the early 7.5 cm Pak 39 (L/48) the first Stu. K42 (L/70) barrels were treaded for a muzzlebrake, though none was ever fitted. Only minor rearrangements had to be made in the fighting compartment to make room for the bigger Stu. K42. As the ammunition was also long, less rounds could be carried and the bin to the right of the gun mounting in the hull well had to be removed. Only 55 Stu. K42 rounds were now carried. To set the gun in balance in the mounting a hydro-pneumatic equilibrator was attached to the right lower side of the gun and a small cast iron counter-weight was welded to the end of the recoil guard. The recoil was much greater than on the Pak 39 (L/48). In fact, it was 50/57.5 cm (19%/22%) while on the PzKpfw 'Panther' the KwK 42 (L/70) was allowed only 40/42 cm (15%/16%) recoil. The same air scavenging system for the long gun barrel, as fitted in the PzKpfw 'Panther', was used in the Panzerjaeger Vomag. However the air compressor was driven by a belt from a pulley wheel added to the main propshaft. For travelling the long gun was raised to 13 degrees and held in place by a travel rest on the nose plate. This travel rest was a considerable improvement over former designs as it was torsionally sprung, thus the moment the gun was elevated it sprang down without the crew having to leave the fighting compartment thus allowing the vehicle to go into action without delay. The sight drum was calibrated in 100 metre units. For Pzgr 39/42 (armour piercing rounds) it read from 0 to 30. The Spgr 42 (high explosive) was ranged from 0 to 50.

Meanwhile, in July 1944, Hitler asked that the entire PzKpfw IV production be converted to the output of the Panzerjaeger Vomag L/70. Therefore, on the 14th July 1944 the "Provisional Directive Program IV" was issued. This indicated that the PzKpfw IV would be cancelled and eliminated by 1945. There was to be rationalisation to three main groups of armoured vehicles, which were to be produced in the greatest possible numbers. These groups were firstly the main battle tanks PzKpfw 'Tiger' and 'Panther' with their associated heavy Jagdpanzers. The second group was to consist of vehicles using the 26 tonne unified Pz III/IV chassis, and included the Panzerjaeger Vomag L/70, Flakpanzer 'Kugelblitz' and heavy field gun carriages. The final group was the vehicles on the Pz 38(t) chassis — mainly the Jagdpanzer 'Hetzer' and some carriages. Special emphasis was to be placed on the standardisation of components within each group. In particular, all engines, transmissions, final drives and suspension units were to be the same. The program set out the timetable for the merging of the PzKpfw IV production with that of the 7.5 cm Sturmgeschuetz L/70. In the meantime the chassis of the PzKpfw IV would receive the features of the PzIII/IV.

The timetable had to take account of the fact that the Panzerjaeger Vomag used a specially modified chassis and the Vomag superstructure would not fit on the usual PzKpfw IV tank chassis. Hitler, therefore, had to accept a phased program in which it was hoped only Panzerjaeger Vomag L/70 would be constructed after February 1945. The firms of Alkett and MIAG of Braunschweig were to be manufacturing the Panzerjaeger chassis by November of 1944. Krupp-Gruson AG of Magdeburg-Buckau who were currently building the Sturmgeschuetz IV were to be mass producing the Panzerjaeger chassis by January 1945. Finally, Nibelungen-Werke of St. Valentin in Austria were to complete the conversion in February 1945. By May of 1945 the monthly production goal of 800 Panzerjaeger Vomag L/70, set in April 1944, was to be achieved. During this time Alkett were told to consider a 10.5 cm Sturmhaubitze 42 using the Vomag vehicle. This howitzer vehicle was to replace the existing Infantry Assault support guns, the 'Brummbaer' and Sturmgeschuetz III armed with the 10.5 cm. Alkett were to plan for manufacture of this vehicle by April 1945. As it had now been decided to scrap the PzKpfw IV and to replace it with the Panzerjaeger Vomag L/70, Hitler issued an order stating that the official designation for this vehicle would be "Panzer IV/70 — (Sd Kfz 162/1)".



**ABOVE:** An early version of the Jagdpanzer IV armed with the long barrelled 7.5 cm Stu. K42. This cannon was based upon that used in the PzKpfw 'Panther'. The "Schurzen" armour shields along the sides of these vehicles were standard, though were quickly lost in action. (IMPERIAL WAR MUSEUM PHOTOGRAPH)

The first Panzer IV/70 reached the troops in action in August 1944 and even then only a few were issued to specially selected Panzerjäger units. While the Panzer IV/70 was found capable of defeating all Allied Armour at long ranges and most Russian Armour at reasonable ranges, the new vehicle proved very difficult and heavy to steer primarily because of the very long gun which was so close to the ground. However, the Panzer IV/70 proved a welcome addition in anti-tank defence. A serious problem arose when it was discovered in action that there was excessive wear and failure of the rubber tyres of the front bogie. The 80 mm armour and the Stu. K42 of course, contributed to this front heavy condition. Fortunately steel rimmed "Silent bloc" wheels were under development for the PzKpfw IV chassis. These steel rimmed wheels were based upon the design originally introduced on the Russian KW I heavy tanks. German steel rimmed wheels were already on the PzKpfw 'Tiger' Ausf. B and E, and were to be introduced on the PzKpfw 'Panther' Ausf. F. As soon as silent bloc wheels were available for the PzKpfw IV chassis they were fitted on the front two positions of the Panzer IV/70.

Obviously the Panzer IV/70 was constantly up-dated in line with the evolution of the PzKpfw IV chassis towards the unified Pz III/IV chassis. Later versions used the vertical exhaust pipes introduced on the late PzKpfw IV Ausf. J. Further simplification and economy was effected towards the end of 1944 by the elimination of one return roller and the repositioning of the remaining three rollers. All Panzer IV/70 had a slightly revised tool stowage layout, where for example the fire extinguisher was placed on the engine covers so that it was in easy reach of the crew. Research has not been able to confirm the exact position of the towrope, however, later vehicles had brackets welded to the engine schurzen plate and it is thought that the rope was hung between these brackets and a vertical pin on the engine cover. The final improvement made to the Panzer IV/70 before production ceased was the fitting of the curved barrel MG or "Vorsatz P" in the roof. It will be remembered that this weapon was ordered back in May 1943 and had been experimentally fitted in some early vehicles for tests. Panzer IV/70 armed with the Vorsatz P were in action in February 1945 but it is thought that only a very limited number of vehicles were built with this new defensive weapon. The Panzer IV/70 was given the nickname "Guderian-Enten" (Guderian Hoax) because of his opposition to the introduction of this Panzerjäger.

As only a small number of Panzer IV/70 had reached the battlefronts by August 1944 and because Vomag was not capable of delivering vehicles quickly enough, Hitler demanded that the program of conversion be scrapped and the entire PzKpfw IV production be immediately switched to the manufacture of the Panzer IV/70. It just was not possible to carry out such a major change within a relatively short time. Eventually Hitler had to admit that it could not be achieved but he demanded that the troops receive greatly increased numbers of Panzerjäger L/70 immediately. A compromise solution was therefore, suggested and agreed by Hitler. An interim version of the Panzer IV/70, using the regular PzKpfw IV chassis and a modified Panzer IV/70 superstructure, would be introduced so as to bridge the gap until all the companies participating in the project had introduced the Panzer IV/70 chassis to their production lines. The "Panzer IV/70 Zwischenloesung" was manufactured in small numbers starting at the end of 1944. An article and drawing of this vehicle have already been prepared, but due to pressure on space have been left over to a Series of Bellona Prints following Series 30. In this future article details will be given of the Vorsatz P curved barrel machine gun mountings for AFVs.

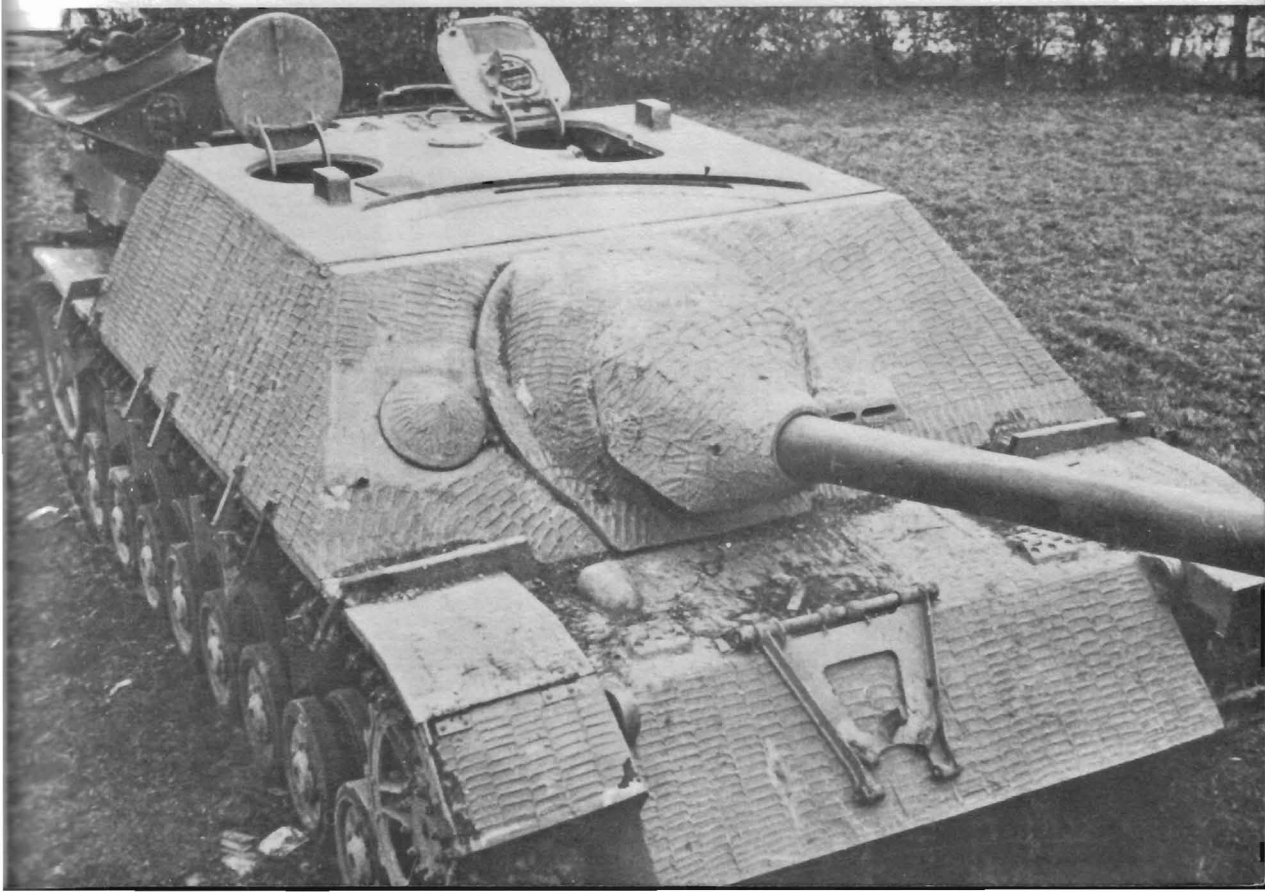
In October 1944 Speer who was in charge of war production even suggested that the 26 tonne class of vehicle, including the Panzer IV/70, be dropped in favour of the other two main groups which appeared to give more effective return for their cost in terms of money, materials and manhours. However, the critical War situation meant that this remained a suggestion only. Indeed chaos in Germany prevented any manufacturer other than Vomag in Plauen from producing the Panzer IV/70, while only Nibelungen produced small numbers of the Panzer IV/70 Zwischenloesung before the factories were overrun. The production figures for the Panzerjäger IV, which included the Jagdpanzer IV Ausf. F (L/48), the Panzer IV/70 and probably also the few Panzer IV/70 Zwischenloesung amounted to 1531 units.





**ABOVE:** The Panzer IV/70 was known to the troops as the "Guderian Enten" (Guderian Hoax) due to his dislike for the vehicle. This picture shows very clearly the very low profile achieved by the Vomag designers. The usual light armour plate has been pulled away from the engine compartment side giving a clear view of how the superstructure height compares favourably with the basic superstructure of the PzKpfw IV. These Panzer IV/70 were based upon the current PzKpfw IV Ausf. J chassis. (R.A.C. TANK MUSEUM PHOTOGRAPH)

**BELOW:** This high angle front view of the above vehicle shows that the roof is similar to the earlier Jagdpanzer IV Ausf. F. The most noticeable difference is the fitting of a single MG mounting to the right of the main gun. Note the way the gun mount flange is now undercut. Presumably this was to save weight as the basic armour was now 80 mm thick. The barrel rest was a big improvement on former designs as it was torsionally sprung and sprang down into a folded position as soon as the gun was elevated from the usual 13 degree travelling elevation. As with all late German Armoured vehicles, the Panzer IV/70 was covered in a coat of 'Zimmerit' anti-magnetic paste. (IMPERIAL WAR MUSEUM PHOTOGRAPH)



The drawings in this issue represent a pre-production and a late production vehicle of the Panzerjaeger IV range, and have therefore been picked as they show all the features of the series. Only pre-production vehicles had the rounded front plate, the first production batch had the flat front plate but were otherwise identical, next came a batch with modified stowage layout where spare track links were stored on the rear, then the muzzlebrake was deleted. More important changes took place in mid 1944 when frontal armour plates were increased to 80 mm, the left hand side MG mounting was deleted, a slightly modified armoured gun mount was introduced and stowage was re-arranged. The Panzer IV/70 was manufactured alongside the Jagdpanzer IV Ausf. F and the final series of changes included the fitting of vertical exhaust pipes, deletion of one return roller and replacement of front wheels with steel rimmed wheels. The Panzer IV/70 in our drawing represents this latter type. The only other known change was the fitting of some "Vorsatz P" curved barrel MG mountings.

*The authors wish to express their thanks to all those persons and agencies that have assisted in the research of this special project. In particular we wish to mention those that have searched for information of the very rare Panzer IV/70 Zwischenloesung vehicles which have never been documented before.*

**NEXT PAGE:** *On the following page we have a series of interior views of the Panzer IV/70 and can be studied in a clockwise direction from view no. 1, the Driver's position.*

1. *Driver's position looking forward. Seat in front of the central fuel tank with controls ahead. The gearbox is on the right under the gun mounting. Vision block slits and grab handle are on the inside of the front plate.*
2. *Breech of the 7.5 cm Stu. K42. To the right of this in the front plate is the 13 cm (5") ball mounting for 7.92 mm MG 34 or 42 machine gun, beneath this is the handwheel for swivelling over the conical cover which protects this opening when not in use. The main bracket which holds the superstructure to the hull can be clearly seen. On vehicles fitted with the 7.5 cm PAK 39 L/48 gun this area alongside the gun houses a bin for the shorter ammunition.*
3. *The right hand side pannier has racks for 20 rounds of 7.5 cm ammunition. On the ceiling is the mounting for the Loader's episcopes, his light and the front of his circular escape hatch. As can be seen the ammunition racks are designed to hinge back into clips on the superstructure side when not in use.*
4. *The Loader's position. On command vehicles the loader moved forward and this position would have been occupied by an additional crew man to operate the radio sets. On the rear of the pannier is the extractor fan, alongside this on the engine fire wall is the heater intake — normally attached to the heater pipe. The radio sets rack is also on the rear wall while the end of the recoil guard can be seen in the foreground. On the ceiling is the escape hatch with its counter-sprung hinges.*
5. *The Commander's position at the rear left of the vehicle. On the ceiling is the 'Nahverteidigungswaffe' (Close-in-defence weapon) and the commander's hatch with the 360 degree traverse periscope mounting in it. In the pannier alongside there are racks for 8 rounds of ammunition while an additional 13 rounds are stored on the floor against the hull side. On the rear wall is a clip for a fire extinguisher.*
6. *Looking forward from the commander's position we see the mounting for the scissors binocular periscope. This periscope is elevated out through the small hatch ahead of the commander's hatch. A further 10 rounds are stored ahead of the plywood separator in the pannier and 4 further rounds are stored vertically beside the gunner, giving a total of 55 rounds in each vehicle*

(ARMIN L. SOHNS PHOTOGRAPHS)







**ABOVE:** The Jagdpanzer IV Ausf. F continued to be constructed at the same time as the Panzer IV/70. However, gradually all vehicles were built with the 7.5 cm L/70 gun. This picture shows a very late version of the L/48 vehicle with all the features of the Panzer IV/70, for example there are only 3 return rollers for the track. When this vehicle was destroyed the "Saukopf" mantlet was blown away giving us an opportunity to see the rest of the gun mounting. Note the internal mantlet and remember that the recoil tube has also been blown off along with the 'Saukopf'. This is a late type of gun mounting with the under cut flanges. It is interesting to note that the side of the flange has been machined away to allow the larger cover now fitted over the MG port to swivel into place. The gun barrel of the 7.5 cm has no provision for the muzzlebrake on these late vehicles, whether L/48 or L/70. (U.S. OFFICIAL PHOTOGRAPH)

**BELOW:** The Panzer IV/70 now with 80 mm frontal armour and the long L/70 gun proved very nose heavy. This condition resulted in heavy wear and failure of the rubber tyres on the front bogie. All the late versions therefore were fitted with the so-called 'Silent bloc' steel rimmed wheels on the front bogie. The vehicle in our picture shows just such a vehicle, although by chance there is one steel rimmed wheel on the front wheel only. Note the three return rollers. This Panzer IV/70 was abandoned in the path of the British 7th Armoured Division at the village of Vilsen 42 Km (26 miles) south of Bremen during the first week of April 1945. The British tank in the background is a 'Cromwell Mk. VI' 95 mm Close support tank. (IMPERIAL WAR MUSEUM PHOTOGRAPH)



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